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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,051	06/30/2000	Manuel Rosendo Arana-Manzano	4015-735	9426

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EXAMINER	
BRINEY III, WALTER F	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 03/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/608,051	ARANA-MANZANO ET AL.	
	Examiner	Art Unit	
	Walter F Briney III	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-7, 9-10, 16-17, 19-22, 24, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Hinman (US Patent 5,390,244).

Claim 1 is limited to **a method for detecting ringback in a received signal, said method comprising: calculating the energy of said received signal**; Hinman discloses calculating correlation coefficients using an energy formula (column 4, equation 1 and column 5, equations 2-11). **Calculating a threshold based on said energy in said received signal**; Hinman discloses an experimentally derived threshold that is varied based in response to the ERLE (i.e. received signal) (column 5, line 55-column 6, line 47). **Determining whether ringback is present in said received signal by comparing said energy in said received signal to said threshold**; Hinman discloses detecting ringback in the received signal under the scrutiny of the threshold (column 6, lines 38-47). **Outputting a control signal indicating whether ringback is present in said received signal**; Hinman discloses enabling or disabling a function based on the presence of ringback, which includes the need of a control signal inherently (column 6, lines 38-47). Therefore, Hinman discloses all limitations of the claim.

Claim 2 is limited to **the method of claim 1**, as covered by Hinman, **further comprising setting said threshold to an initial value at the start of a call**; Hinman discloses a variable threshold that is inherently set to a value at the start of a call (column 5, lines 55-60). **Adjusting said threshold upwardly based on said energy of said received signal**; Hinman discloses varying the threshold based on the ERLE (i.e. based on received signal), which means it varies upward and downward as the signal changes. Therefore, Hinman discloses all limitations of the claim.

Claim 3 is limited to **the method of claim 1**, as covered by Hinman, **wherein outputting a control signal comprises changing said control signal to a first state indicative of no ringback to a second state indicative of ringback when ringback is detected**; Hinman discloses controlling a function based on the presence of ringback, which means the control signal has two states, one when ringback is present and one when ringback is not present (column 6, lines 38-47). Therefore, Hinman discloses all limitations of the claim.

Claim 4 is limited to **the method of claim 3**, as covered by Hinman, **wherein changing said control signal further comprises changing said control signal from said second state indicative of ringback to said first state indicative of no ringback when ringback is no longer detected**; Hinman discloses controlling a function based on the presence of ringback, which means the control signal has two states (i.e. ringback and no ringback), and when ringback is no longer detected the control signal is switched from ringback to no ringback inherently (column 6, lines 38-50). Therefore, Hinman discloses all limitations of the claim.

Claim 6 is limited to **the method of claim 1**, as covered by Hinman, **further comprising using said control signal to control an audio processing circuit**; Hinman discloses controlling an echo canceller (i.e. audio processing circuit) in the presence of ringback (i.e. using said control signal) (column 6, lines 38-47). Therefore, Hinman discloses all limitations of the claim.

Claim 7 is limited to **the method of claim 6**, as covered by Hinman, **wherein using said control signal to control an audio processing circuit comprises freezing an adaptive algorithm within said audio processing circuit when ringback is detected**; Hinman discloses preventing an update in a LMS algorithm (i.e. freezing an adaptive algorithm) when ringback is detected (column 6, lines 38-47). Therefore, Hinman discloses all limitations of the claim.

Claim 9 is rejected for the same reasons as claim 7.

Claim 10 is essentially the same as claim 9 and is rejected for the same reasons.

Claims 16 and 19 are essentially the same as claim 1 and are rejected for the same reasons.

Claims 17 and 21 are essentially the same as claim 3 and are rejected for the same reasons.

Claim 20 is essentially the same as claim 2 and is rejected for the same reasons.

Claim 22 is essentially the same as claim 4 and is rejected for the same reasons.

Claim 24 is essentially the same as claim 6, as covered by Hinman, with the following limitations of **a communications terminal comprising: a receiver for receiving signals transmitted from a remote location**; Hinman discloses a codec

(i.e. receiver) (figure 2, element 65) that received signals from a telephone line (i.e. remote location) (figure 2, element 22). **An audio processing circuit to process audio signals contained in said received signal**; Hinman discloses a codec for processing the received signal (column 3, lines 20-23). **A ringback detector to determine whether ringback is present in said received signal**; Hinman discloses detecting ringback using a ringback detector (figure 2, element 65 and column 3, lines 9-15 and lines 49-56). Therefore, Hinman discloses all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 14, 18, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinman in view of Xie (US Patent 5,588,053).

Claim 5 is limited to **the method of claim 4**, as covered by Hinman. Therefore, Hinman discloses all limitations of the claim with the exception of **further including maintaining said control signal in said second state for a predetermined period of time after ringback is no longer detected before changing to said first state**; Xie teaches an enhanced guard-time check unit (figure 2, element 136) that fails tone detection when a signal is not present for two sample periods (i.e. predetermined period

of time) for the purpose of reducing false tone detection (i.e. ringback) (column 17, line 28-column 18, line 31). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the guard-time check unit as taught by Xie in conjunction with the tone detection algorithm of Hinman for the purpose of reducing false tone detection.

Claim 14 is limited to **the method of claim 5**, as covered by Hinman in view of Xie, **wherein using said control signal to control an audio processing circuit comprises changing the operating mode of said audio processing circuit**; Hinman discloses controlling a DSP (i.e. audio processing circuit) in the presence of ringback (i.e. using said control signal) (column 6, lines 38-47). Therefore, Hinman in view of Xie makes obvious all limitations of the claim.

Claim 18 and 23 are essentially the same as claim 5 and are rejected for the same reasons.

Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinman in view of Campanella (US Patent 3,894,200) and in further view of Hamilton (US Patent 5,450,484).

Claim 8 is limited to **the method of claim 7**, as covered by Hinman. Campanella teaches to include a double-talk detector (i.e. voice activity detector) in an echo canceller system for the purpose of preventing distortion of outgoing speech (abstract). It would have been obvious to include a double-talk detector as taught by Campanella in the echo canceller of Hinman for the purpose of detecting double-talk and avoiding distortion of outgoing speech. Therefore, Hinman in view of Campanella makes obvious

all limitations of the claim with the exception **wherein said adaptive algorithm is a voice activity detector**; Hamilton teaches preventing voice detection in the presence of ringback for the purpose of preventing the false identification of high amplitude, periodic signals (i.e. ringback) as voice (column 1, line 11-column 2, line 14). It would have been obvious to one of ordinary skill in the art at the time of the invention to stop the double-talk detection of Campanella in the presence of ringback as taught by Hamilton for the purpose of preventing false identification of high amplitude, periodic signals as voice.

Claim 25 is rejected for the same reasons as claim 8.

Claims 11 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinman in view of Suvanen (US Patent 6,081,732).

Claim 11 is limited to **the method of claim 7**, as covered by Hinman. Therefore, Hinman discloses all limitations of the claim with the exception **wherein said adaptive algorithm is a noise estimator**; Suvanen teaches that noise estimators are used for the purpose of providing comfort noise to a user so they know the phone line is live (column 2, lines 30-46). It would have been obvious to include a noise estimator as part of a comfort noise generator as taught by Suvanen for the purpose of assuring the user that the line is live. Suvanen teaches that the noise estimator is updated during periods of silent far-end communication (i.e. no ringback) (column 11, line 44-column 12, line 4), thus when ringback is present and detected by the method of Hinman (which is similar to voice detection by thresholds) it would appear as a voice signal and would disable the update of a noise estimator so the background noise level is not falsely set. It would

have been obvious to one of ordinary skill in the art at the time of the invention to prevent updating of the noise estimator during non-silent portions of communication as taught by Suvanen for the purpose of providing comfort noise in the absence of far-end signals.

Claim 28 is rejected for the same reasons as claim 11.

Claims 12 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinman in view of Gupta (US Patent 5,809,463).

Claim 12 is limited to **the method of claim 7**, as covered by Hinman. Therefore, Hinman discloses all limitations of the claim with the exception **wherein said adaptive algorithm is a channel gain estimator**; Gupta teaches not to update (i.e. adapt) an ERLE (i.e. channel gain estimator) buffer in the presence of tones because they cause the ERLE to be falsely high (column 6, lines 20-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to not update the ERLE of Hinman in the presence of tones as taught by Gupta for the purpose of preventing a falsely high ERLE.

Claim 29 is rejected for the same reasons as claim 11.

Claims 13 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinman in view of Kitchin (US Patent 5,539,812).

Claim 13 is limited to **the method of claim 7**, as covered by Hinman. Kitchin teaches to mute a microphone (i.e. change mode of operation and act as a residual echo suppressor) in the presence of ringback and unmute (i.e. bypass mode) when ringback is not detected for the purpose of preventing signal interference (column 18,

line 66-column 19, line 34). It would have been obvious to one of ordinary skill in the art at the time of the invention to mute the microphone of Hinman in the presence of ringback as taught by Kitchin for the purpose of preventing signal interference. Therefore, Hinman in view of Kitchin has been shown to make obvious all limitations of the claim with the exception **wherein said adaptive algorithm is a noise suppressor**; Hinman discloses a limiter and gain adjust (i.e. adaptive algorithm for noise suppression) (figure 2, elements 15 and 17 and column 3, lines 35-48) that would be prevented from updating (i.e. adapting) when the microphone (figure 1, element 40) is muted in the presence of ringback as taught by Kitchin because the input signal is unvarying. Therefore, Hinman in view of Kitchin makes obvious all limitations of the claim.

Claim 30 is rejected for the same reasons as claim 13.

Claims 15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinman in view of Xie as applied to claim 14 above, and further in view of Kitchin.

Claim 15 is limited to **the method of claim 14**, as covered by Hinman in view of Xie. Therefore, Hinman in view of Xie makes obvious all limitations of the claim with the exception **wherein said audio processing circuit is a residual echo suppressor wherein said control signal is used to place said residual echo suppressor in a bypass mode**; Kitchin teaches to mute a microphone (i.e. change mode of operation and act as a residual echo suppressor) in the presence of ringback and unmute (i.e. bypass mode) when ringback is not detected for the purpose of preventing signal interference (column 18, line 66-column 19, line 34). It would have been obvious to one

of ordinary skill in the art at the time of the invention to mute the microphone of Hinman in the presence of ringback as taught by Kitchin for the purpose of preventing signal interference.

Claim 31 is rejected for the same reasons as claim 15.

Response to Arguments

Applicant's amendment filed 4 February 2004 with respect to claims 22 and 23 have been fully considered and have overcome the previous objections and 35 U.S.C. 112 Second Paragraph rejections associated with the above listed claims.

Applicant's arguments filed 4 February 2004 with respect to claims 1-31 have been fully considered but they are not persuasive, thus all rejections - with the exception of the above mentioned 35 U.S.C. 112 Second Paragraph rejection of claim 23 - are reapplied to the claims with no modification.

With respect to claim 1, the applicant alleges (a) (page 10, first paragraph) **that Hinman does not disclose calculating the energy of the received signal**; the examiner respectfully disagrees. Notice that correlation coefficient R(0) is calculated using two blocks of samples. Block S2 is an exact copy of block S1. Their cross-product is an energy calculation. Further, even though the blocks (i.e. S1 and S2) are windowed, it is noted that any non-analog (i.e. digital) processing inherently requires the use of a rectangular windowing scheme (i.e. 160-sample block) to observe the data. Even though a Hamming window is further employed, the signal can still be measured for energy, if not, energy could never be measured by non-analog means.

Further in respect to claim 1, the applicant alleges (b) (page 10, second paragraph) **that Hinman does not disclose comparing the said energy in the said receive signal to said threshold**; the examiner respectfully disagrees. It is noted that the ERLE measurement used by Hinman takes measurements at points 37 and 38 of figure 2. It appears at first glance that this does represent received energy from line 22 of figure 2, but the acoustic coupling between lines 42 (derived from line 22) and 24 contains received energy. Further, the threshold of Hinman is not only pre-calculated but adapted by ERLE calculations (column 6, lines 28-33).

Further in respect to claim 1, the applicant alleges (c) (page 11, second paragraph) **that Hinman does not disclose comparing said energy in said received signal to said threshold**; the examiner respectfully disagrees. The main argument here is related to argument (a), where no true energy calculation is ever made. However, as shown in the response to argument (a), it is clear that correlation coefficient R(0) is an energy calculation, and the computed sum is a function of such. Therefore, the energy of the received signal is compared to the threshold.

All other arguments rely solely on the rationale made in the arguments for claim 1, and as such are not persuasive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB
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